Date:

Monday, 23/02/2009 2:59:52 PM

User:

Julie Dawson

Process Sheet

Customer

: CU-DAR001 Dart Helicopters Services

S.O. No. :

Job Number : 46004

Estimate Number

P.O. Number

: 23/02/2009 This Issue

Prsht Rev. : NC

: // First Issue

Previous Run

: 43484

: 10278

: MACHINED PARTS Type

Part Number

Due Date

Drawing Name

: D3121141

Drawing Number

: D3121 REV E

: BRACKET ASSEMBLY

Project Number

: N/A : E

Drawing Revision

Material

: 11/03/2009

Qty:

30 Um:

Each

Written By

Comment

Checked & Approved By

New issue KJ/DS

Est Rev:B ECN 1060 07-11-12 DD verified by: EC

Est Rev:C New Dimensions for Blank Size 08-07-23 JLM Verified

By:EC

Additional Product

Job Number:



Seq. #:

Machine Or Operation:

Description:

1.0

M174B1250X02000

17-4 SS Bar 1.250 x 2.00



Comment: Qty.:

0.5775 f(s)/Unit Total: 17.3250 f(s)

Material: 17-4 SS Bar per AMS 5604/5643

(M17-4-B1.250x02.000) Identify for D3121-111

Batch: / 0 9 85 1

BAND SAW



Comment: BAND SAW

Cut blanks: (1.250" x 2.000") 6.600" long

3.0

2.0





Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine D3121-111 as per Folio FA361 and Dwg D3121Identify as D3121-111

FA331

2-Deburr

3-Scribe batch number

26

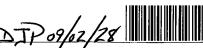
4.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE





Dart	Aeros	pace	Ltd
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W/O:			WO	RK ORDER CHANG	ES				
DATE	STEP	. PRO	OCEDURE CHAI	IGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No.	•	DAD #.	Fault Catas		NOD				
raitito		PAR #:							
	He	esolution:						Date:	
NCR:		7,	WORK ORDE	R NON-CONFORMA	ANCE (NCR)			
DATE	STEP	Description of NC				n B Verifica			Approval
	JILI	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Secti		Approval Chief Eng	QC Inspector
								:	
	*								

Date: Monday, 23/02/2009 2:59:52 PM User: Julie Dawson **Process Sheet** Customer: CU-DAR001 Dart Helicopters Services Drawing Name: BRACKET ASSEMBLY Job Number: 46004 Part Number: D3121141 Job Number: Seq. #: **Machine Or Operation:** Description: 5.0 QC8 SECOND CHECK Comment: SECOND CHECK D312121 Bolt 6.0 Comment: Qty.: 1.0000 Each(s)/Unit Total: 30.0000 Each(s) Pick: Qty Part Number Description Batch B4603 1 D3121-21 7.0 D3121241 Bearing Assembly Comment: Qty.: 1.0000 Each(s)/Unit Total: 30.0000 Each(s) Pick: **Qty Part Number** Description ... Batch D46031 1 D3121-241 Bearing Ass 8.0 SMALL FAB 1 SMALL & MEDIUM FAB RESOURCE 1 Comment: SMALL & MEDIUM FAB RESOURCE 1 Assemble D3121-141 as per Dwg D3121. INSPECT WORK TO CURRENT 9.0 QC5 Comment: INSPECT WORK TO CURRENT STEP PACKAGING PACKAGING RESOURCE #1 10.0 Comment: PACKAGING RESOURCE #1 Identify and Stock Location: FINAL INSPECTION/W/O RELEASE 11.0 QC21 Comment: FINAL INSPECTION/W/O RELEASE Job Completion



Dart Aerospace Ltd

W/O:				WORK ORDER	CHANGES					
DATE	STEP		PR	OCEDURE CHANGE		Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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Part No	•		PAR #:	Fault Category:	NCI	R: Yes	No DQ	A:	_ Date: _	
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NCB.				WORK ORDER NON-COM	FORMANCE	(NC	R)			

NCR:			WORK ORDE	ER NON-CONFORMANC	E (NCR)			
DATE	OTED	Description of NC		Corrective Action Section B		Verification	Annuaral	Ammunual
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspecto
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DART AEROSPACE LTD	Work Order: 内(め)			
Description: Bracket	Part Number:	D3121-111		
Inspection Dwg: D3121 Rev: E		Page 1 of 1		

FIRST ARTICLE INSPECTION CHECKLIST

X	First Article		Prototype
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	Drawing	Tolerance	Actual	Accept	Reject	Method of	Com	ments
	Dimension	lolerance	Dimension	Accept	Reject	Inspection	Com	·
	Ø0.392	+0.002/-0.000	0,392			-		
	0.75	+/-0.030	.750"		_			
	0.375	+/-0.010	376					
Ī	2.14	+/-0.030	2.120"					_
Ī	1.96	+/-0.030	1 962					
Ì	0.280	+/-0.010	284"					
Ī	3.330	+/-0.010	2 327"					
Ī	3.630	+/-0.010	3 628	/			- "	
	R0.25	+/-0.030	BO 250"					
Ī	R0.375	+/-0.010	A0,375		_			
X	Ø0.201	+0.005/-0.001	8,200					
	0.100	+/-0.010	099					
*	4.580	+/-0.010	4.584"					
×	6.18	+/-0.030	6.180"					,
*	5.89	+/-0.030	5 874		ł			
	0.080	+/-0.010	078"					
	0.300	+/-0.010	30/"					
	30°	+/-0.1°	30°					
	R0.25	+/-0.030	Ro 250"	\	,			
	0.130	+/-0.010	127					
*	0.664	+/-0.010	,664.					
Ì	0.381	+/-0.010	383"					
Ī	0.201	+/-0.010	201					
	0.400	+/-0.010	39/"			-		
	0.580	+/-0.010	5801					
ļ	100°	+/-0.1°	100°					
.	0.032	+0.000/-0.010	(03/"					
, [Measured by:	T F	Audited by:	15		Prototyne A	nroval:	N/A

_				Λ /			
	Measured by: J.f	f .	Audited by:) / · · ·		Prototype Approval:	N/A
Ī	Date: 09/	02/2/	·Date:	01/03/0	3	Date:	N/A

Rev	Date	Change /_ '	Revised by	Approved
Α	04.01.12	New Issue P/O D3121-141	KJ/RF	
В	04.05.05	Dimensions changed/re-arranged per Dwg revision	KJ/JLM	
С	06.06.14	Dwg Rev. updated	KJ/JLM	
D	08.01.16	Dimensions updated per Dwg Rev. E	KJ/EC/DD	
E.	08.05:28	Tolerance revised for Ø0.201 dimension	KJ/DD · J	
			- 171	

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W/O:			WC	RK ORDER CHANG	ES				
DATE	STEP	PR	OCEDURE CHA	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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		,							
Part No		PAR #:							
Resolution:			Dispositio	n:	_ QA: N/C Cld	osed:		Date: _	
NCR:			WORK ORD	ER NON-CONFORMA	ANCE (NCR)			
DATE	STEP	Description of NC		on B	Veritic		cation Approval	Approval	
DAIL	SIEF	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section		Chief Eng	QC Inspector



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	# LE		DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
			APPROVED	DRAWING NO. REV. E
		#		D3121 SHEET 1 OF 10
Į	DATE			TITLE SCALE
	07.1	1.07		BRACKET ASSEMBLY 1:2
	Α		02.04.15	NEW ISSUE
	В		03.01.16	ADD RIDGES; ADD MAT'L PROP; FIX P/N ADD -141/-143/-144/-145/-146
,	С		04.02.17	ADD CLEARANCE; USE -241 BEARING
	D		06.05.17	D3121-25 CAP WAS 1.024, NOW 1.000

RELEASED

- D3121-2	1 BOLT (1)
D3121-2	41
BEARING	ASSEMBLY (1)

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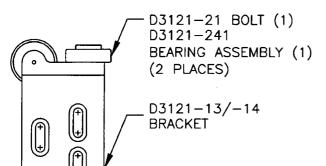
D3121-11 BRACKET

D3121-041 BRACKET ASSEMBLY

07.11.07

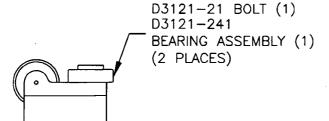
(REPLACES PREMIER P/N B30-23000-33)

ADD TOLERANCE TO 0.032 (DETAIL B)



D3121-043 (SHOWN) / D3121-044 (OPPOSITE) BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-37/-38)



D3121-15/-16 BRACKET

D3121-045 (SHOWN) / D3121-046 (OPPOSITE)

BRACKET ASSEMBLY
SHOP COPY

(REPLACES PREMIER P/NEBBOT23000-35/-36)

ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

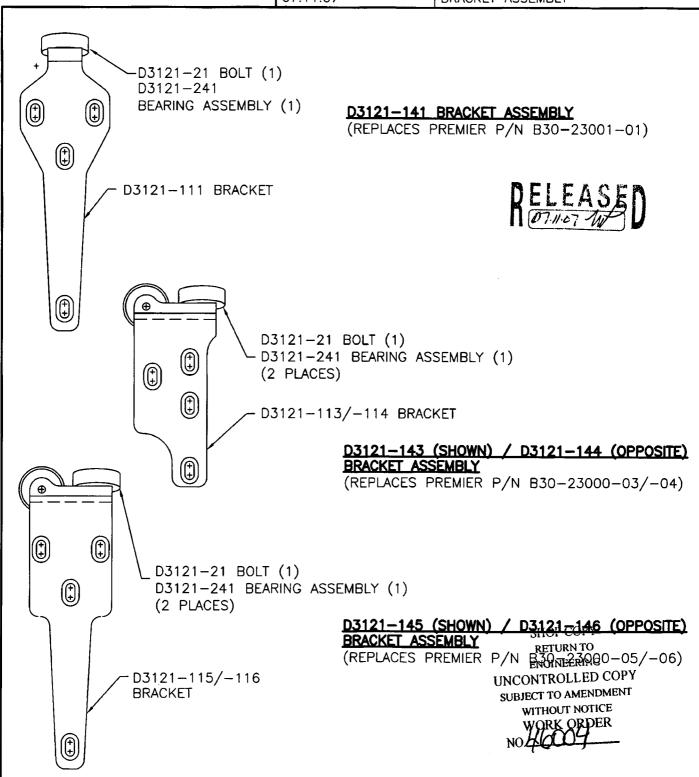
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W/O:			WC	RK ORDER CHANGI	ES				
DATE	STEP	PRO	OCEDURE CHAI	NGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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	R	esolution:	Disposition	າ:	QA: N/C CI	osed:		Date:	
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DATE	STEP	Description of NC		Corrective Action Section		Verifica	ation	Approval	Approval
DATE	SIEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section		Chief Eng	QC Inspector



DESIGN	DRAWN BY	DART AEROSP HAWKESBURY, ONTAR	
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#		D3121	SHEET 2 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



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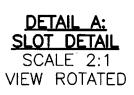
Dart Aerospace	Ltd
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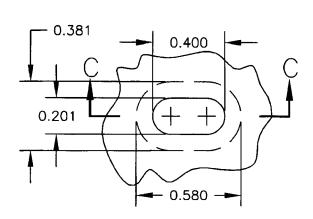
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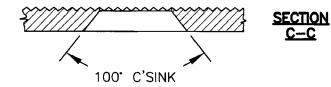
NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
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4	-#	D3121	SHEET 3 OF 10
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07.11.07		BRACKET ASSEMBLY	1:1

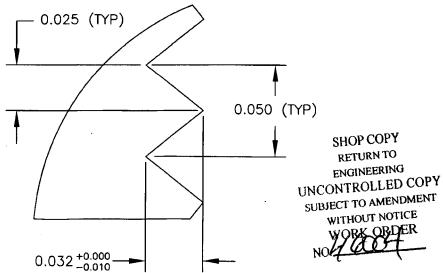








DETAIL B: RIDGE DETAIL PARTIAL SECTION SCALE 1:20



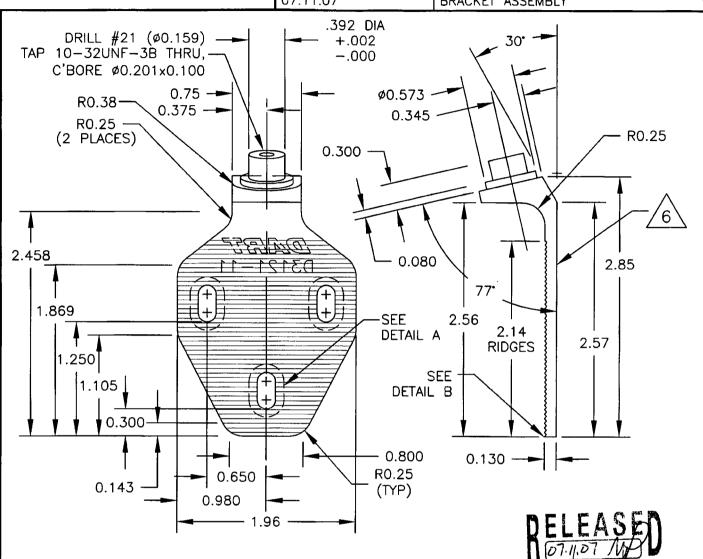
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1 4	- #	D3121	SHEET 4 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:1



D3121-11 BRACKET

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B) SHOP COPY MIN ULTIMATE TENSILE = 150 ksi

MIN YIELD TENSILE = 100 ksi

2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

3) ALL DIMENSIONS ARE IN INCHES

4) BREAK ALL SHARP EDGES 0.005 TO 0.015

5) ENGRAVE DART P/N & LOGO AS SHOWN

6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

ENGINEERING

UNCONTROLLED COPY SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

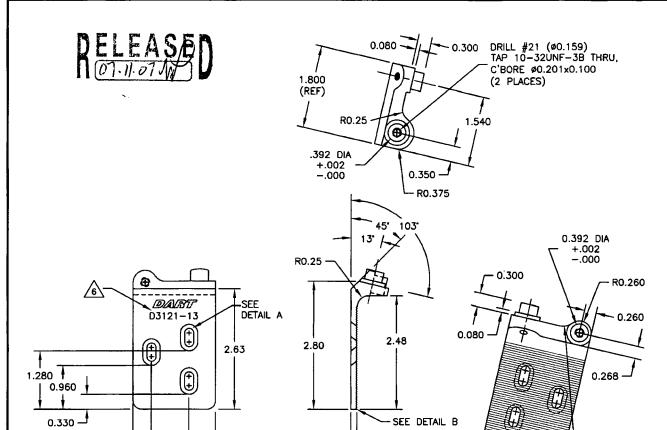
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DATE	STEP				Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
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DATE	STEP	Description of NC		Corrective Action Section	ı B	Verific	cation	Approval	Approval
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DESIGN	DRAWN BY	DART AEROS HAWKESBURY, ON	
CHECKED	APPROVED	DRAWING NO.	REV. E
4	- #	D3121	SHEET 5 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



0.130 -

D3121-13 BRACKET (SHOWN)
D3121-14 BRACKET (OPPOSITE)

1.220 ├-— 1.800 ·

0.400 -

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
MIN ULTIMATE TENSUE STRENGTH = 150 ksi

MIN ULTIMATE TENSILE STRENGTH = 150 ksi MIN YIELD TENSILE STRENGTH = 100 ksi

2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

3) ALL DIMENSIONS ARE IN INCHES

4) BREAK ALL SHARP EDGES 0.005 TO 0.015 5) ENGRAVE DART P/N & LOGO AS SHOWN

6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

-B) SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY

RO.38

SUBJECT TO AMENDMENT WITHOUT NOTICE

WORK ORDER

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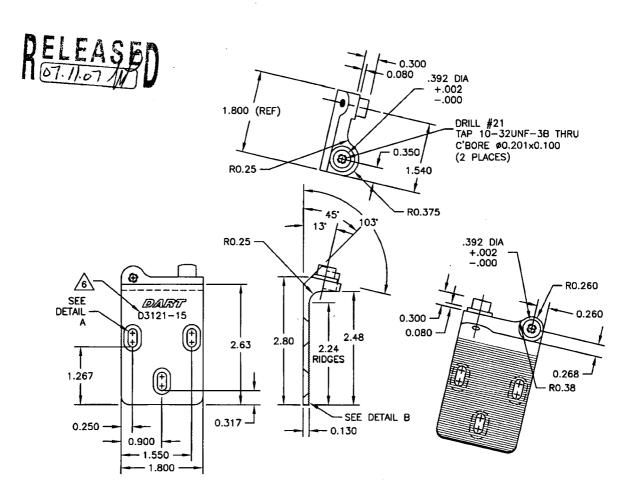
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W/O:			WORK ORDER CHANGES							
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	F	esolution:	Disposition:	QA: N/C	Closed:		Date: _			

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
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DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector
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CHECKED	APPROVED	DRAWING NO.	REV. E
DATE		TITLE	SHEET 6 OF 10
07.11.07		BRACKET ASSEMBLY	1:2



D3121-15 BRACKET (SHOWN) D3121-16 BRACKET (OPPOSITE)

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)

MIN ULTIMATE TENSILE = 150 ksi

SHOP COPY

MIN YIELD TENSILE = 100 ksi

RETURN TO

- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- ENGINEERING

3) ALL DIMENSIONS ARE IN INCHES 4) BREAK ALL SHARP EDGES 0.005 TO 0.015 UNCONTROLLED COPY SUBJECT TO AMENDMENT

5) ENGRAVE DART P/N AND LOGO AS SHOWN

WITHOUT NOTICE

6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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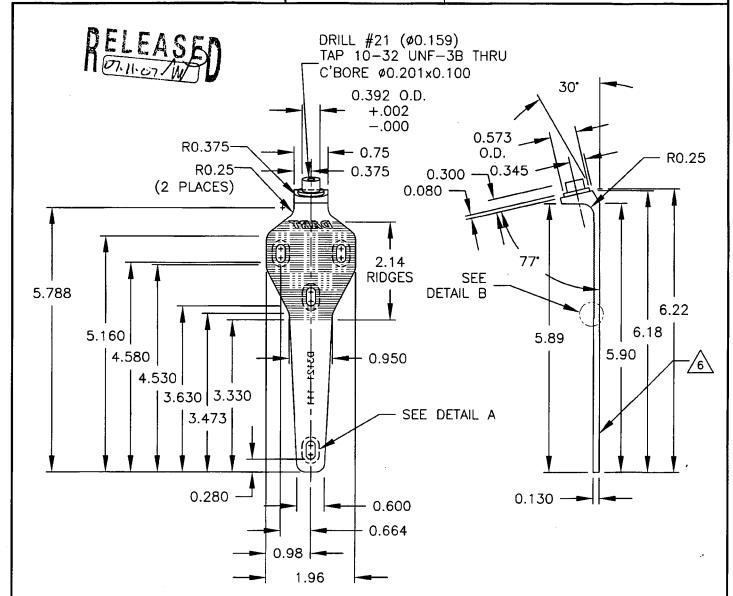
Dart Aerospace Ltd

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DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	Approval QC Inspector
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DATE STEP Description NC Section A Initial Chief Eng Chief Eng Sign & Date Chief Eng C



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CHECKED	APPROVED	DRAWING NO.	REV. E	
#		D3121	SHEET 7 OF 10	
DATE		TITLE	SCALE	
07.11.07		BRACKET ASSEMBLY	1:2	



D3121-111 BRACKET

- 1) REPLACES PREMIER P/N B32-23001-11
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B) SHOP COPY MIN ULTIMATE TENSILE = 150 ksi

RETURN TO

ENGINEERING

3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHEWISE NOTED

MIN YIELD TENSILE = 100 ksi

UNCONTROLLED COPY

4) ALL DIMENSIONS ARE IN INCHES

SUBJECT TO AMENDMENT

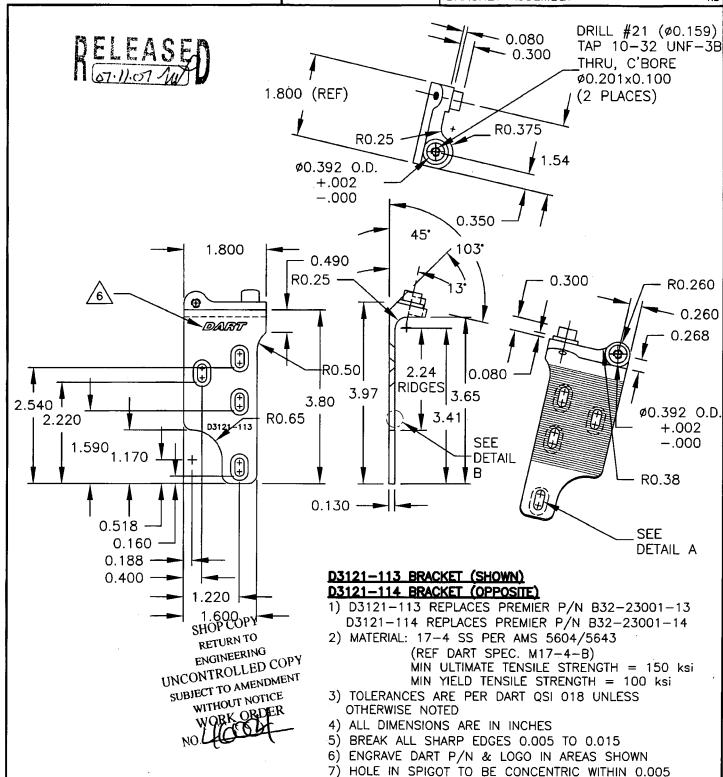
5) BREAK ALL SHARP EDGES 0.005 TO 0.015 6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN WITHOUT NOTICE

7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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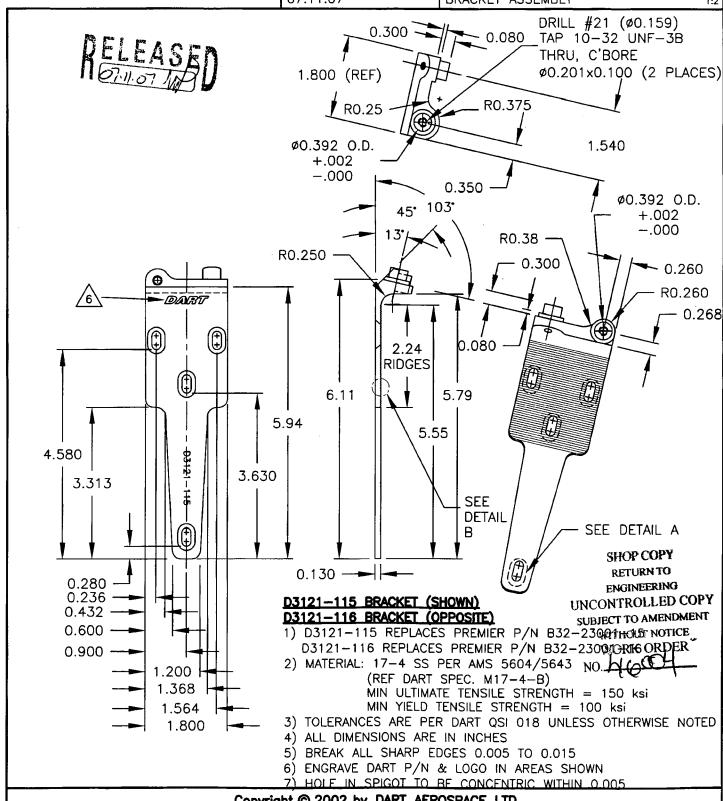
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CHECKED _	APPROVED,	DRAWING NO.	REV. E
#	-#	D3121	SHEET 8 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



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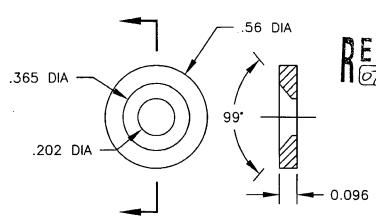
DESIGN	DRAWN BY		OSPACE LTD ONTARIO, CANADA
CHECKED _	APPROVED,	DRAWING NO.	REV. E
#	-#	D3121	SHEET 9 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



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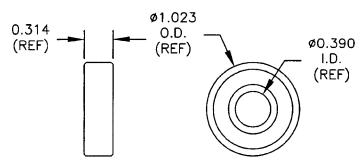


DESIGN DRAWN BY DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. CHECKED APPROVED REV. E D3121 SHEET 10 OF 10 DATE TITLE SCALE 07.11.07 BRACKET ASSEMBLY 1:1



D3121-17 WASHER (SCALE 2:1)

- 1) REPLACES PREMIER P/N B32-23001-17
- 2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-19 BEARING (SCALE 1:1)

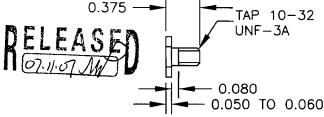
- 1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM 1) MATERIAL: DELRIN ROD, Ø1.25 FAFNIR P/N 9100KDD
- 2) ALL DIMENSIONS ARE IN INCHES



D3121-23 BEARING (SCALE 1:1)

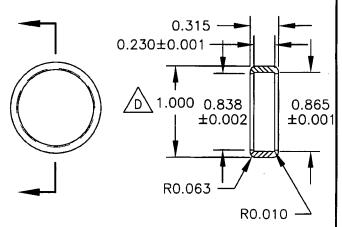
1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z OR KML P/N 6900-ZZ

ALL DIMENSIONS ARE IN INCHES



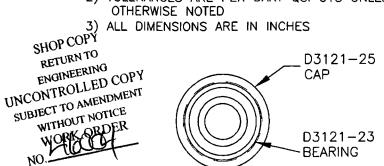
D3121-21 BOLT (SCALE 1:1)

- 1) MATERIAL: AISI 303 SS HEX, ANNEALED (REF DART SPEC. M303H0.500)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-25 CAP (SCALE 1:1)

- - (REF DART SPEC. M-DELRIN-R1.250)
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS



D3121-241 BEARING ASSEBLY (SCALE 1:1)

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